

Sample Grade 3 Unit—Weight

Unit Introduction

In this unit, students:

- Use a balance and a platform scale.
- Understand the parts of a balance and a platform scale.
- Estimate the weights of common objects.
- Develop benchmarks for units of weight.
- Measure the weight of common objects.
- Explore relationships between ounces, pounds, and tons.
- Explore relationships between grams and kilograms.
- Weigh with grams and kilograms.

Assessment

A unit test in multiple-choice format is provided on page Assessment • 5.

KWL



Use a KWL chart to activate prior knowledge and set learning goals as a class. A reproducible KWL chart is provided on page BLM • 15.

Games for Practice and Review

Use the MeasureWorks Game Board to reinforce learning. Game rules begin on page BLM • 23.

Have students keep the KWL chart in their math folders and add to it as they work through this unit.

Focus on Vocabulary

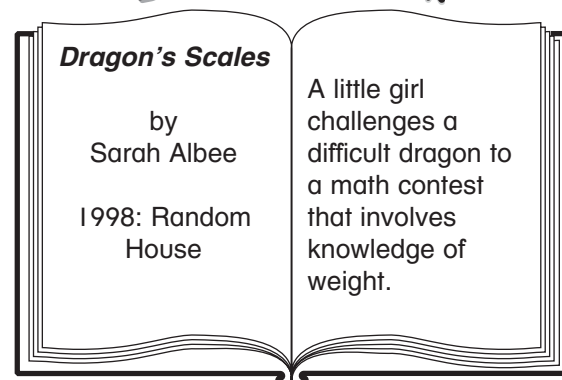
gram (p. T-3)	ounce (p. T-1)	scale (p. T-1)
kilogram (p. T-3)	pound (p. T-1)	ton (p. T-2)

Have the scales and weights on display where the class can easily see them. Prepare tagboard strips with the vocabulary words. Label a set of scales and weights. Invite children to explore the scales and weights, and encourage them to use the correct vocabulary as they do so.

Heads Up!

Students may believe that larger objects are always heavier than smaller objects. Encourage them to hold pairs of objects in their hands to compare and estimate their weight before they weigh the objects on a balance. As students use the balance, introduce the idea of algebraic equality by emphasizing that adding or subtracting weight from one of the sides can balance the pans.

Book Nook



Sample Grade 3 Unit—Weight

Pages	Learning Goals	Manipulatives				
		Balance	Kilogram mass	Platform scales	Standard mass set	PopCubes
T-1-1	Weigh in ounces and pounds. Use a balance scale and a platform scale.	✓		✓	✓	
T-2-2	Estimate weight in ounces, pounds, and tons. Relate ounces, pounds, and tons.			✓	✓	
T-3-3	Weigh with kilograms and grams. Use a balance and a platform scale.	✓	✓	✓		✓
T-4-4	Weigh with grams and kilograms. Relate grams and kilograms.	✓	✓	✓		

Literature Connection

Pippi Longstocking by Astrid Lindgren
(Puffin, 1997)

The beloved orphan Pippi Longstocking is the strongest girl in the world. She easily lifts her horse and other large weights.

Have students estimate the weights of the objects Pippi lifts. Encourage them to think of ways to check their estimates.

Sample Grade 3 Unit—Weight

Estimate Weight in Customary Units

Planning Your Time		
Intro & Demo	Activity	Sum It Up
15 min	20 min	5 min
		

Objective

Estimate weight in ounces, pounds, and tons.
Relate ounces, pounds, and tons.

Materials

- Platform scales
- Standard mass set
- Pictures of objects that weigh a ton: automobile, small elephant, etc.

Grouping

Whole class, then six groups

Open It Up

Say: It is often useful to know or estimate how much something weighs. For example, if you bake an apple pie, the recipe might call for 4 pounds of apples. You could weigh the apples on a scale at the grocery store. If you know that two apples weigh about 1 pound, you could estimate that eight apples would weigh about 4 pounds.

Ask students to think of other times when they might need to know how much something weighs.

[Samples: Snowboards and skis are adjusted to a person's weight; candy is often sold by the pound.]

Demonstrate & Discuss

Display a platform scale. Then show some items that students can use as benchmarks. For example, show a new pencil.

Say: Five new pencils weigh about 1 ounce. Demonstrate by placing them on the platform scale. Repeat to show that two apples weigh about one pound.

Say: There are 16 ounces in a pound.

Have a volunteer place 16 red 1-ounce weights on a platform scale to check.

Then weigh a textbook. Show students how to weigh it to the nearest pound and then count on to find the number of ounces. Explain how to record a weight in a combination of pounds and ounces.

Tell students that 1 **ton** equals 2,000 pounds. Show pictures of objects that could be weighed in tons.

Student Activity

Prepare ahead: Each group will need a platform scale. Provide a collection of objects to weigh: counters, a baseball, a stapler, scissors, textbooks, glue bottles, a sack lunch, a pack of index cards, etc. The objects should have a variety of weights, and some should weigh more than 1 pound.

Students work in groups. One student chooses an object, estimates its weight, and records the object and estimate. Then the other students weigh the object. If the student has guessed within 8 ounces, he or she gets one point. If the guess is off by more than 8 ounces, the other students get a point. Students repeat for seven more objects. They add up the points to find the winner.

Informal Assessment

As students work, remind them to think of benchmarks for a pound and an ounce.

Ask: What unit would you use to weigh an elephant: ounces, pounds, or tons? [tons] paper clips? [ounces] bananas? [ounces or pounds] a carton of ice cream? [pounds] / SUMMARIZE /

Which is heavier, ounces or pounds? [pounds]
How much heavier? [16 times heavier] How do you know? [I know there are 16 ounces in a pound.] / GENERALIZE /

Sum It Up

Say: Today we learned how to weigh objects in pounds and ounces.

To sum up students' grasp of the material, return to the game. Ask partners their scores and how they made their estimates for the ones they got right.

Word Study

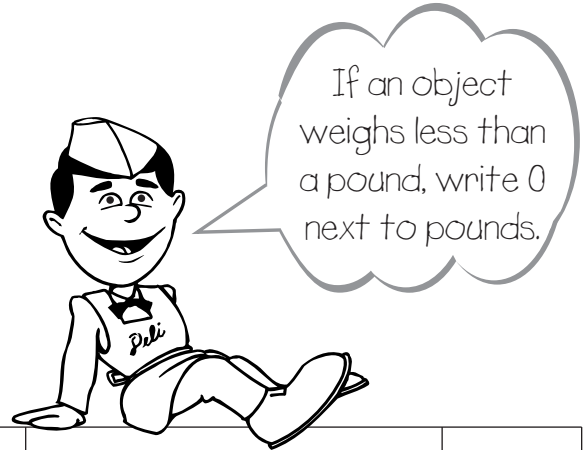
Invite students to look up the abbreviation for *pound* in a dictionary. Tell them that the abbreviation *lb* comes from the Latin word *libra*, which means *pound* or *weight*.

Name _____

Estimate Me

Try This

- Choose an object.
- One player estimates its weight.
- Have another player weigh the object.
- If the estimate is correct (within 8 ounces), the estimator gets a point.
- If not, the other players get a point.
- Repeat for five other objects.



Object	Estimate	Actual Weight	Points
① _____	___ pounds ___ ounces	___ pounds ___ ounces	___
② _____	___ pounds ___ ounces	___ pounds ___ ounces	___
③ _____	___ pounds ___ ounces	___ pounds ___ ounces	___
④ _____	___ pounds ___ ounces	___ pounds ___ ounces	___
⑤ _____	___ pounds ___ ounces	___ pounds ___ ounces	___
⑥ _____	___ pounds ___ ounces	___ pounds ___ ounces	___

Total: _____